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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Masafumi KOIDE

Appln. No.: 09/601,078

Confirmation No.: 5578

Filed: July 20, 2000

For: PNEUMATIC TIRE

Docket No: Q60201

Group Art Unit: 1733

Examiner: Steven D. Maki

SUBMISSION OF APPELLANT'S BRIEF ON APPEAL

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an original and two copies of Appellant's Brief on Appeal. A check for the statutory fee of $320.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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WASHINGTON OFFICE
23373
PATENT TRADEMARK OFFICE

Date: August 12, 2003

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APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellant submits the following:

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880. Appellant's Notice of Appeal was filed on June 18, 2003. Therefore, the present Appeal Brief is timely filed.

I. REAL PARTY IN INTEREST

The real party in interest is BRIDGESTONE CORPORATION (Assignee) by virtue of an assignment executed by the inventor (Appellant), on July 17, 2000, and recorded by the Assignment Branch of the U.S. Patent and Trademark Office on July 20, 2000 (at Reel 011011, Frame 0902).

II. RELATED APPEALS AND INTERFERENCES

Appellant states that, upon information and belief, Appellant is not aware of any co-pending appeal or interference which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-10 are all of the pending claims. The Advisory Action dated May 23, 2003 indicated that for purposes of Appeal the status of the claims is: claims 1-9 rejected, and claim 10 objected to. Claims 1-10 are the claims appealed.

IV. STATUS OF AMENDMENTS

This is an appeal from the final Office Action dated December 18, 2002, wherein claims 1-10 were finally rejected. An After Final Amendment was filed on May 14, 2003. In an Advisory Action dated May 23, 2003, the Examiner indicated that claim 10 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims and maintained the final rejected of claims 1-9. The Advisory Action indicated that the Amendment filed May 14, 2003 would be entered upon the filing of an Appeal.

V. SUMMARY OF THE INVENTION

The present invention is directed to a pneumatic tire having a block-shaped land portion including a twisted sipe, in which the twisted sipe generates a self alignment torque in the block-shaped land portions that reduces the self-alignment torque generated by the cords of the tire's reinforcing layer.

Generally, sipes are narrow slits in the tire that divide the block-shaped land portions into smaller portions. Specification at 12-14. These smaller portions increase the tread area of the block-shaped land portion that are in contact with the road surface. When a car having a tire with sipes is driven, the compression of the block-shaped land portions causes the small blocks that are on opposite sides of a sipe to abut each other. Specification at 5-10.

In some pneumatic tires, a plurality of reinforcing layers is provided underneath the tire tread. At least the outermost layer of the plurality of reinforcing layers includes parallel cords provided at an inclination angle with respect to the circumferential direction of the tire. Specification at 16:8-13. When a vehicle, which has a tire with these reinforcing layers, is driven, the cords of the outermost reinforcing layer lean toward the tire circumferential direction due to the inclination angle of the cords. This leaning generates a self alignment torque when the tire returns to its normal position. Specification at 2:17-25.

When a vehicle using the tire of the present invention is driven, the ground contact pressure on the block-shaped land portion causes small portions of the block-shaped land portion on opposite sides of a sipe to abut each other, forcing the block-shaped land portions to deform in the direction of twisting of the sipe. This deformation provides a restoring torque force (self-alignment torque) that restores the block-shaped land portions in a direction opposite to a deformation of the block-shaped land portions. Specification at 11:10-16. Therefore, if the sipe is twisted in the appropriate direction, then the self alignment torque generated by the sipes counteracts the self alignment torque generated by the inclined cords,. Specification at 5:13-25.

VI. ISSUES

A. Are Claims 1 and 7-9 unpatentable under 35 U.S.C. § 103(a) over:

1) *Moseley et al.*, U.S. Patent No. 5,669,993 (hereinafter "Moseley") in view of

2) *Collette et al.*, U.S. Patent No. U.S. 4,856,571 (hereinafter "Collette") or Japanese Patent Publication No. 62-286,805[1] (hereinafter "JP '805"); in view of

3) Published European Application No. 0 605 849 (hereinafter "EP '849") and Blow, *Rubber Technology and Manufacture*, pp. 345-356 (hereinafter "Blow"); and further in view of

4) Japanese Patent Publication No. JP 9-323,510 ("hereinafter JP '510") and PCT Patent Publication No. WO 96/01190 ("hereinafter "WO '190")?

B. Are Claims 2-6 unpatentable under 35 U.S.C. § 103(a) over Moseley in view of Collette or JP '805, in view of EP '849 and Blow, in view of JP 510 and WO '190, and in further view of Lagnier, U.S. Patent No. 5,783,002 (hereinafter "Lagnier")?

VII. GROUPING OF CLAIMS

Claims 1-9 stand and fall together.

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[1] English language translations of the applied non-English language references was not provided by the Examiner. As discussed in MPEP §706.02, although in limited circumstances, it may be appropriate to rely on the abstract of a non-English document in a non-final Office Action, if an Examiner intends to rely upon a non-English document, a translation must be obtained so that the record is clear.

VIII. ARGUMENTS

A. Claims 1 and 7-9 are patentable over Moseley in view of Collette or JP '805, in view of EP '849 and Blow, and further in view of JP 510 and WO '190

With respect to independent claims 1 and 7, the combination of applied references does not teach or suggest the claimed invention. For example, there is no teaching or suggestion of the claimed tire having a "sipe [that] is twisted such that a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers."

It is the Examiner's position that Moseley teaches a tire tread having a twisted block with narrow grooves. Office Action dated December 18, 2003 at p. 3 (Paper No. 9). However, Moseley does not teach that the narrow grooves of Moseley are "twisted such that a self alignment torque is generated by the block." Although Moseley teaches that the twisted shape of the tire block counteracts the tire's residual self-alignment torque (Moseley at 3:26-36 & 4:6-24), Moseley does not teach or suggest that the narrow grooves provide a self alignment torque generated by the block.

In fact, as was discussed in Section V. above, when a vehicle having the claimed tire with twisted sipes is driven, the portions of the block-shaped land portions that are on opposite sides of the sipe abut each other, causing the block-shaped land portions to deform in the direction of twisting of the sipes. This deformation provides a restoring torque force (self-alignment torque) that restores the block-shaped land portions in a direction opposite to a deformation of the block-shaped land portion. Since there is no teaching or suggestion that the sides of the narrow

grooves of Moseley abut each other when the block is compressed (and that does not necessarily occur), there is also no teaching or suggestion that the narrow grooves provide the claimed self alignment torque.

The Examiner further asserts that it would have been obvious to modify the tire of Moseley to so that the narrow grooves are sipes, alleging that 1) Moseley shows a tire tread lock with narrow grooves, 2) it is well known to provide narrow grooves in the form of sipes in order to improve traction, and 3) twisted sipes are known. However, as discussed above, Moseley does not teach that the narrow grooves "are twisted such that a self alignment torque is generated by the block." As such, there would have been no motivation for one of ordinary skill in the art to have replaced the narrow grooves with sipes.

In addition, although Collette and JP '805 generally show tires that use sipes to improve traction or wear and JP 510 and WO '190 generally show the use of twisted sipes or grooves, there is no teaching or suggestion within these references to that sipes are used to "reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers", as is claimed.

It is only by properly arranging a block-shaped land portion with a sipe twisted in the appropriate direction with respect to the inclination of the inclination of the cords that the sipe "is twisted such that a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost

reinforcing layer of the plurality of reinforcing layers." A tire with land-shaped block portions having twisted sipes that are not arranged properly will not provide the claimed invention.

None of the applied references suggests properly arranging the sipes so that "a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers." Consequently, one of ordinary skill in the art would not have been motivated to modify Moseley's tire to use the claimed twisted sipes that "reduce a self alignment torque generated due to the cords" unless he or she had knowledge of Appellant's invention. It is well settled that it is impermissible to rely on hindsight knowledge of the invention as the motivation for combining references.[2]

Furthermore, we are not dealing with an anticipation rejection in which the doctrine of inherency could be relied on by the Examiner. In any event, the claimed invention is not inherent in any of the cited references.

In addition, Blow (which was applied by the Examiner to show reinforcing layers within a tire) and EP '849 (which was applied to show that reinforcing layers can cause a residual self alignment torque) do not make up for the deficiencies in the references discussed above because

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[2] The USPTO is held to a *rigorous* standard when trying to show that an invention would have been obvious in view of the combination of two or more references. *See, In re Sang Su Lee*, 61 U.S.P.Q.2d 1430 (Fed. Cir. 2002), *citing, e.g., In re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.").

they clearly neither teach nor suggest sipes that "reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers."

Furthermore, Appellant notes that the tire disclosed in Moseley uses the twisted block portion in order to counteract the high magnitude residual self-alignment torque caused by the turning of a vehicle. However, smaller magnitude residual self-alignment torques, such as those caused by the inclination angle of the cords in the outermost reinforcing layer, can occur even when a vehicle is not turning. The claimed sipe arrangement is designed to suppress this smaller magnitude self alignment torque.

Therefore, for at least the reasons set forth above, there is no reasonable suggestion or motivation, found in the references themselves or the knowledge generally available to one of ordinary skill in the art (without the aid of impermissible hindsight) for combining or modifying the references. Further, even if the numerous necessary references cited could somehow be combined, they are so irrelevant that one of ordinary skill would never arrive at the claimed invention.

For at least the reasons set forth above, independent claims 1 and 7 are patentable over the applied combination of Moseley in view of Collette or JP '805, in view of EP '849 and Blow, in view of JP 510 and WO '190. In addition, dependent claims 8 and 9 are also patentable at least because of their dependency from claim 1.

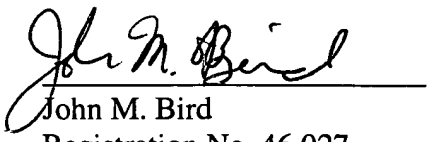
B. Claims 2-6 are patentable over Moseley in view of Collette or JP '805, in view of EP '849 and Blow, in view of JP 510 and WO '190, and further in view of Lagnier

With respect to independent claim 2, the combination of Moseley in view of Collette or JP '805, in view of EP '849 and Blow, in view of JP 510 and WO '190 does not teach or suggest the claimed tire having a "sipe [that] is twisted such that a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers," for the same reasons discussed above with respect to claims 1 and 7, and further since Lagnier, which the Examiner applies in an attempt to show wavy sipes, does not cure the deficiencies of the other cited references.

Therefore, independent claim 2 is patentable over the applied combination of Moseley in view of Collette or JP '805, in view of EP '849 and Blow, in view of JP 510 and WO '190, and further in view of Lagnier. It is noteworthy that the Examiner has to combine eight (8) different references in this rejection (and seven different rejections vis-a-vis claims 1 and 7-9) to reject the present claims. The sheer number of references is at least some indication that the rejection is based on an improper reliance on hindsight.. In addition, dependent claims 2-6 are also patentable at least because of their dependency from claim 2.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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PATENT TRADEMARK OFFICE

Date: August 12, 2003

APPENDIX

CLAIMS 1-9 ON APPEAL:

1. A pneumatic tire comprising:

a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other;

a tread provided on a top of said reinforcing layers which are laminated; and

a block-shaped land portion having a sipe, said block-shaped land portion being defined on a tread surface by main grooves formed in the tire circumferential direction and by lug grooves formed in a direction intersecting with the main grooves;

wherein said sipe is shaped so as to be twisted around a first central axis of twisting extending in a tire radial direction in the block shaped land portion and a second central axis of twisting extending substantially in a tire transverse direction, a position P1 of said first central axis of twisting in a region between one end surface of the block-shaped land portion and another end surface in the tire transverse direction and a position P2 of said central axis of twisting in a region between a contact patch area and a bottom of the sipe in the tire radial direction being within ranges satisfying the following expressions:

$0.2W \leq P1 \leq 0.8W$

$0.2F \leq P2 \leq 0.6F$

wherein P1, P2 represent the position of the first and second central axes of twisting; W represents a distance from one end surface to the other end surface of the block-shaped land portion in the tire transverse direction; and F represents a distance from the contact patch area to the bottom of the sipe in the tire radial direction; and

wherein the sipe is twisted such that a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers.

2. A pneumatic tire comprising:

a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other;

a tread provided on a top of said reinforcing layers which are laminated; and

a block-shaped land portion having a sipe, said block-shaped land portion being defined on a tread surface by main grooves formed in the tire circumferential direction and by lug grooves formed in a direction intersecting with the main grooves;

wherein said sipe is shaped so as to have a first protruding portion protruding in a first direction with respect to a virtual central plane and a second protruding portion protruding in a second direction opposite the first direction across the virtual central plane, said sipe including a surface portion exposed on a contact patch area of said block-shaped land portion and a bottom

portion formed in a bottom of the sipe, the virtual central plane and thereby said sipe being twisted from the surface portion toward the bottom portion; and

wherein the sipe is twisted such that a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers.

3. A pneumatic tire according to claim 2, wherein said sipe is wave-shaped in a section parallel to the contact patch area of the block-shaped land portion.

4. A pneumatic tire according to claim 2, wherein said sipe is wave-shaped in a tire circumferential directional section of the block-shaped land portion.

5. A pneumatic tire according to claim 2, wherein said virtual central plan and thereby said sipe is shaped so as to be twisted around a first central axis of twisting extending in the tire radial direction in said block-shaped land portion, a position P1 of said first central axis of twisting in a region between one end surface of the block-shaped land portion and the other end surface in the tire transverse direction being within a range satisfying the following relational expression:

$$0.2W \leq P1 \leq 0.8W$$

wherein P1 represents the position of the first central axis of twisting; and W represents a distance from one end surface to the other end surface of the block-shaped land portion in the tire transverse direction.

6. A pneumatic tire according to claim 2, wherein said virtual central plane and thereby said sipe is shaped so as to be twisted around a second central axis of twisting extending substantially in the tire transverse direction in said block-shaped land portion, a position P2 of said second central axis of twisting in a region between the contact patch area and the bottom of the sipe in the tire radial direction being within a range satisfying the following relational expression:

$$0.2F \leq P2 \leq 0.6F$$

wherein P2 represents the position of the second central axis of twisting; and F represents a distance from the contact patch area to the bottom of the sipe in the tire radial direction.

7. A pneumatic tire comprising:

a plurality of reinforcing layers in each of which cords, which are inclined at a predetermined angle with respect to a tire circumferential direction, are provided parallel to each other;

a tread provided on a top of said reinforcing layers which are laminated; and

a block-shaped land portion having a sipe, said block-shaped land portion being defined on a tread surface by main grooves formed in the tire circumferential direction and by lug grooves formed in a direction intersecting with the main grooves;

wherein said sipe is shaped as a closed loop which is connected with neither said main groove nor said lug groove, said sipe including a surface portion exposed on a contact path area of the block shaped land portion and a bottom portion formed in a bottom of a sipe, the sipe being twisted from said surface portion toward said bottom portion; and

wherein the sipe is twisted such that a self alignment torque is generated by the block so as to reduce a self alignment torque generated due to the cords provided parallel to each other in an outermost reinforcing layer of the plurality of reinforcing layers.

8. A pneumatic tire according to claim 1, wherein the block-shaped land portion is twisted from the contact patch area toward the bottom portion.

9. A pneumatic tire according to claim 8, wherein a direction of twisting of the block-shaped land portion is the same as a direction of twisting of the sipe twisted from the contact patch area toward the bottom of the sipe.